Webology (ISSN: 1735-188X)
Volume 18, Number 5, 2021

An Exploration Of Covid-19 Bibliographic Data

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ABSTRACT

Infectious diseases continue to be a complicated, recurring, and difficult public health threat. Coronaviruses have had a wide range of effects on people's health, mobility, and socioeconomic status. Despite the importance and severity of the influence of epidemics to pandemics, there is a paucity of material on comprehensive coronavirus research performance over time. The purpose of this study was to conduct a scientometric analysis of coronavirus-related literature, including COVID-19. The Web of Science was used to gather information about coronavirus studies (WoS). We included and retrieved all categories of articles (33,707). The analysis of co-authorship among countries, co-occurrence of keywords, citation analysis based on published documents, countries, and organisations, bibliographic coupling using documents, countries, and organisations, and co-citation among published cited references are all included in this study. Vos viewer is used for deep examination of a wide range of metrics in order to measure the amount and quality of the publications. In general, there has been a rising tendency in the publication of Covid-19-related articles over time, with the United States, England, and Italy leading the way, followed by the People's Republic of China and Germany.

KEYWORDS: Covid-19, Bibliographic, Scientometrics, Web of Science, Scopus, Publication, Citation

1. INTRODUCTION

Various economic and socio-cultural activities have been halted in many countries around the world because of the problems of combatting the unique Coronavirus pandemic [1][2]. On the other hand, it has sparked a flood of scientific research, both within and beyond the medical field, in order to assist communities in overcoming this difficulty and minimising its negative consequences. The immensity of these scientific efforts, as well as the rapidity with which knowledge on this topic is generated, make it difficult for anyone to keep up with these discoveries [16]. In this short review, we conduct a macro-scale study of the scientific literature on Coronaviruses in general, as well as the novel Coronavirus (COVID-19) in

particular, in order to address this difficulty and help better organise these emerging and fast expanding scientific outputs [3][4]. We also look more extensively at the COVID-19 literature with safety components to see what aspects of research have been addressed by the scientific community so far in terms of safety. A holistic assessment of which safety features are pretty well covered academically and which have so far received less academic interest can be important in directing future research efforts, aside from the importance this may have in limiting the effects of the current crisis. Scientifically analysing and comprehending the different safety implications of the COVID-19 pandemic to the greatest extent feasible will also help society be better prepared for future pandemic breakouts, and ultimately assist informed decision-making in light of societal values [5][6].

Any epidemic or pandemic necessitates decisions that are frequently made with insufficient knowledge, rapidly changing circumstances, and unclear outcomes [7]. Need evaluation, planning, and readiness are all important, but context is rarely that straightforward [8]. Scientific research plays an important role in disease control and prevention, particularly in the case of viral and other infectious disease epidemics and pandemics. Virus identification, vaccine development, preventative and control measures, and the creation of specialised medications are all based on research output and trends [9] [10]. Bibliometrics is a tool for identifying research trends and evaluating proceedings and performance indicators [11][12]. It is commonly used for mapping information in various scientific disciplines. It analyses the evolution of major knowledge fields within connected literature and finds prolific authors, institutions, countries, and other key indicators involved in research [17].

2. MATERIALS AND METHODS

Researchers can access databases such as Scopus, EBSCO, Science Direct, Pro-Quest, and PubMed, among others. Web of Science (WoS) was used for this study because it is widely regarded as a somewhat consistent, standardised [13] and widely utilised source for bibliometric analysis in numerous disciplines of study [14], [18]. Furthermore, WoS, a platform managed by Clarivate Analytics (Formerly Thomson Reuters), is regarded as the most precise and complete source for scientific investigation and appraisal with the best quality indexing [15], [25]. It is also thought to be more relevant to the study scope and to evaluate the research output of various areas, authors, or organisations [39,40], as well as to analyse the results. It includes over one billion searchable cited references as well as search across major search databases, disciplines, and document kinds.

3. RESULT AND DISCUSSION

3.1 Citation Analysis based on Documents

In this section, the citation analysis based on the number of documents got citation count of 10 and above. Out of 33707 documents, 3216 documents got citation count over 10 per documents. The document with highest 3533 citation is Guan (2020e) with the link strength of 521 followed by the citation of 2916 by Zhou (2020o) with the link strength of 363 and

then the citation of 1761 by Wu(2020q) with the link strength of 273. Figure 1 depicts the network visualization of citation analysis of the documents [24].

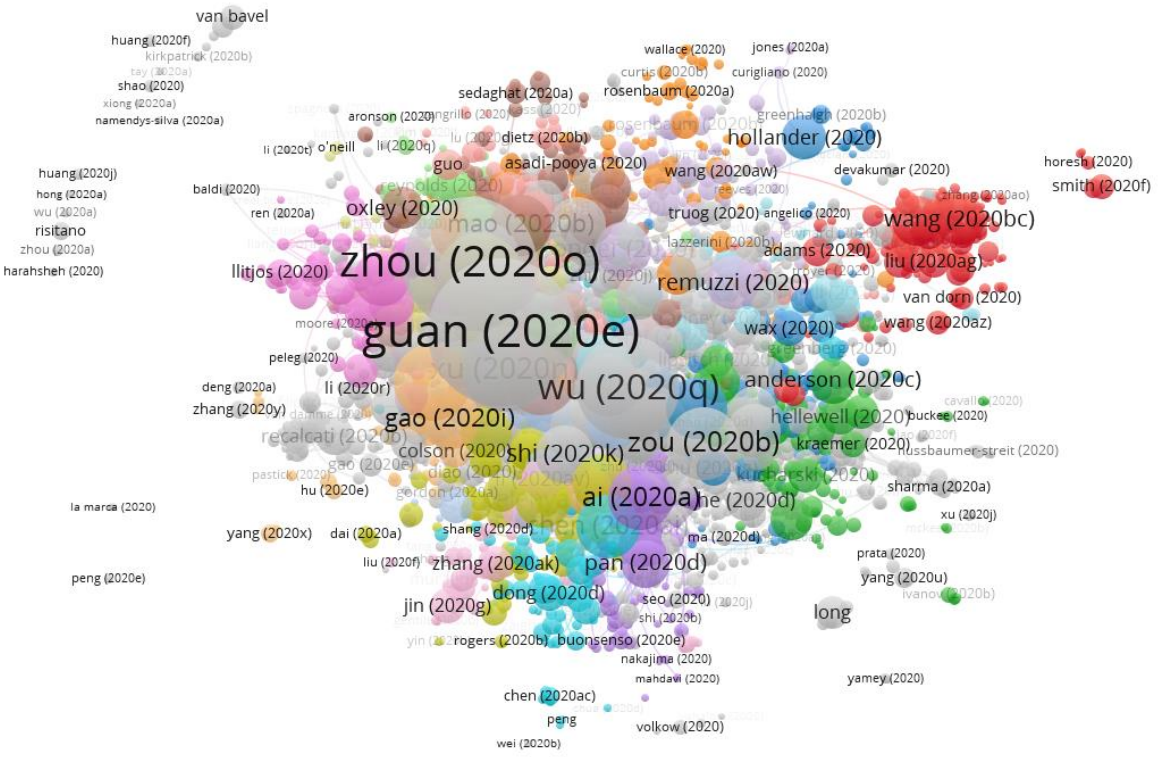

Figure 1: Network Visualization of Documents Citation Analysis

3.2 Citation Analysis based on Countries

In this section, Figure 2.1 gives the network visualization of the documents published by the countries. Figure 2.2 gives the network visualization of the citation analysis by the countries. The minimum number of documents published by the country is set as 5. From the figure 2.1 and figure 2.2, Out of 183 countries, 135 countries have published at least 5 documents. Among the 135 countries, USA contributed nearly 9955 documents with the Citation of 61460, followed by Peoples R China has published 4866 documents with the citation count of 78071, Italy has published 3847 documents with 24404 citations. USA has contributed more documents related to USA, but Peoples R China got more citation with 50% of the documents than USA[19].

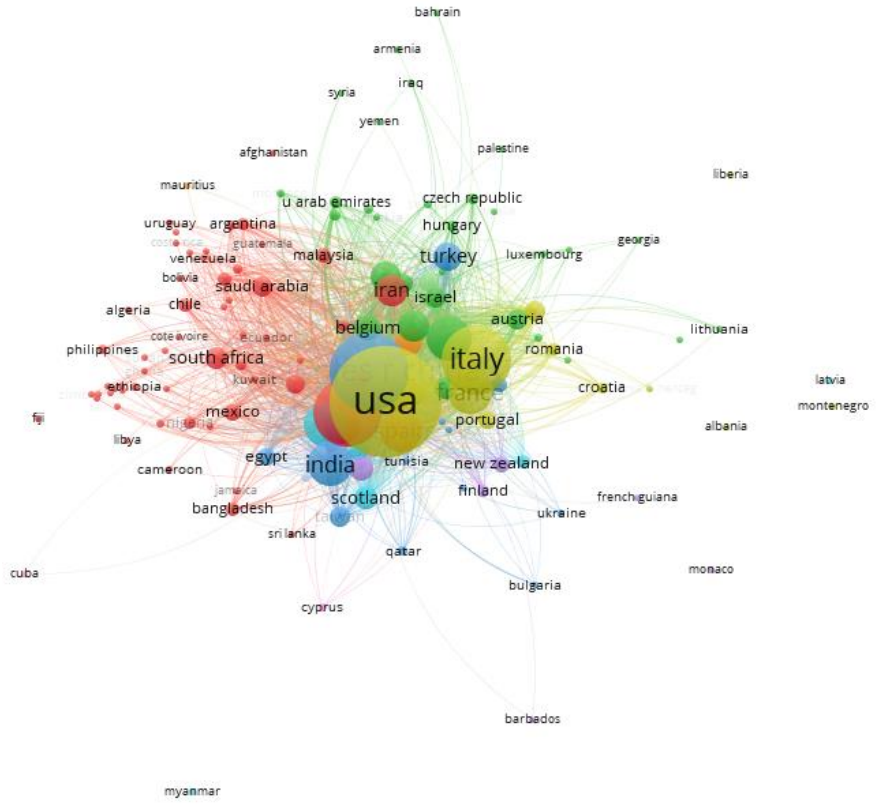

Figure 2.1: Network visualization of the documents published by the countries

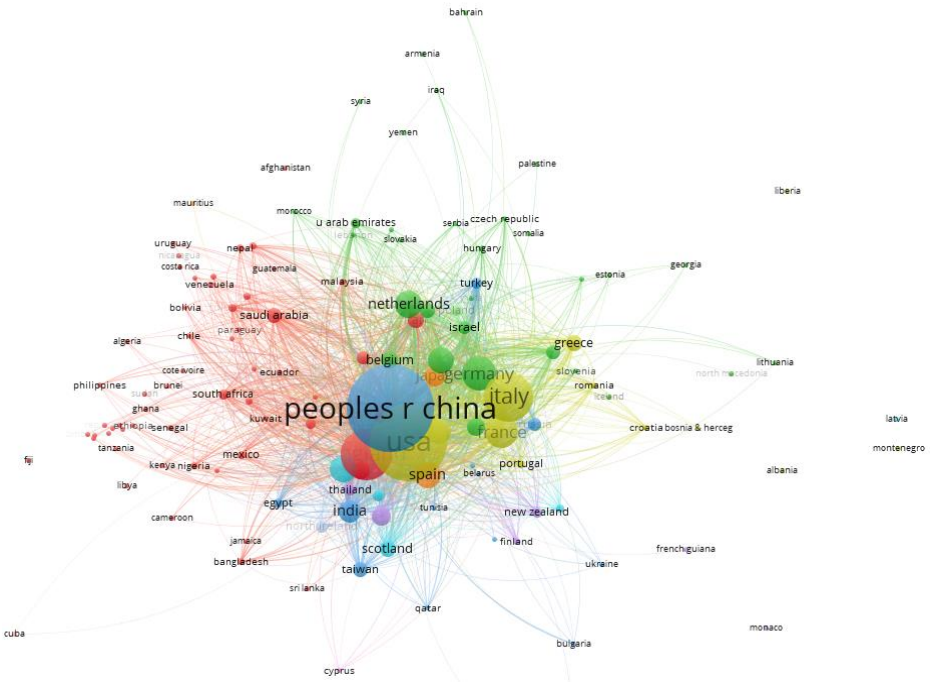

Figure 2.2: network visualization of the citation analysis by the countries

3.3 Co-Occurrence Analysis

The documents have totally 35762 keywords, among those keywords, when the minimum number of occurrences of a keyword is set as 5, then only 3705 has met the threshold. Figure 3.1 gives the Network visualization of the co-occurrence analysis of all the keywords. From the figure 3, the keywords like COVID-19 have the occurrence count of 13327, followed by SARS-COV-2 has the occurrence count of 4258, and the coronavirus has count of 4103. After those keywords, pneumonia, sars, pandemic has the occurrence count of nearly 1000 [20].

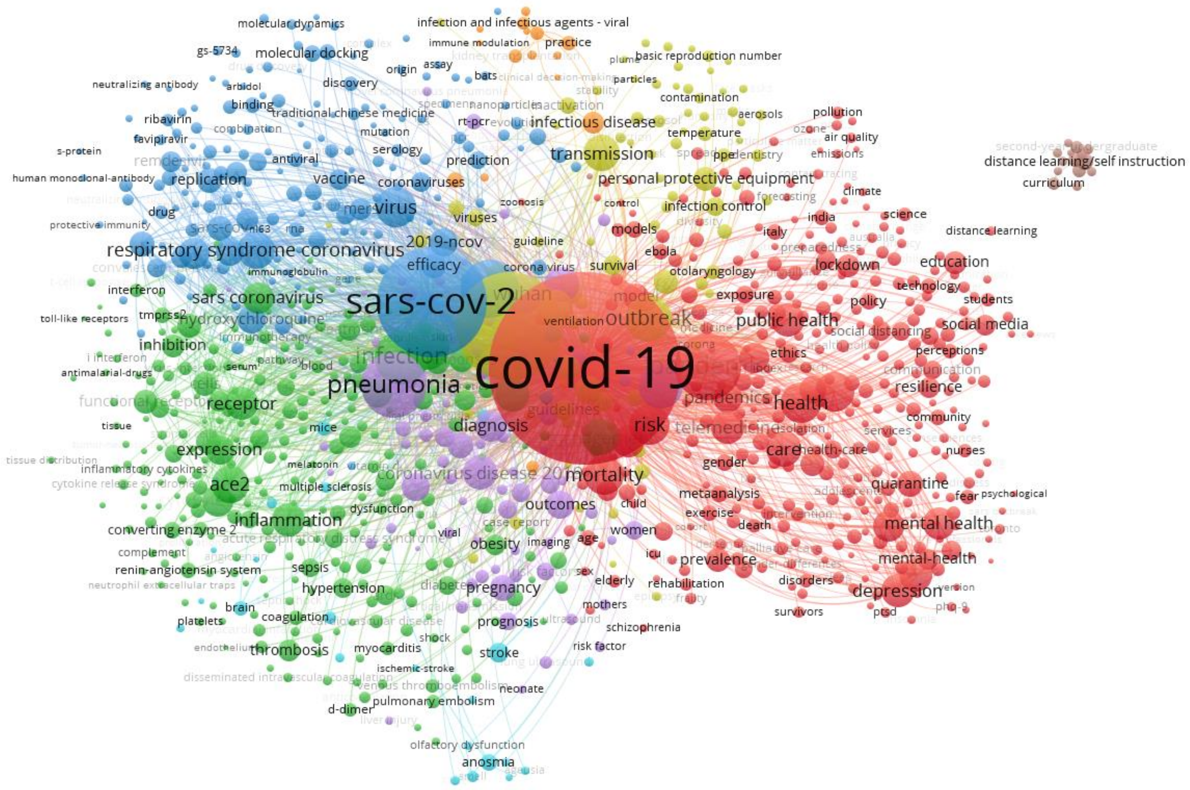

Figure 3: Network Visualization of the Co-Occurrence of the keywords in the documents

In this analysis, the co-occurrences of the author keywords are considered. Here the threshold is set as the minimum number of occurrences of a keyword as 5. Out of 26987 keywords, 2261 keywords have occurred at least 5 times. Figure 3.2 depicts the network visualization of the co-occurrences of the authors keywords. From the figure 3.2, COVID-19 have the occurrence count of 13026, followed by SARS-COV-2 has the occurrence count of 4175, and Coronavirus have the occurrence of 2851 and the pandemic has the occurrence count of 1568, another than those keywords, Pneumonia, public health, epidemiology, mental health etc has occurred below 1000 counts.

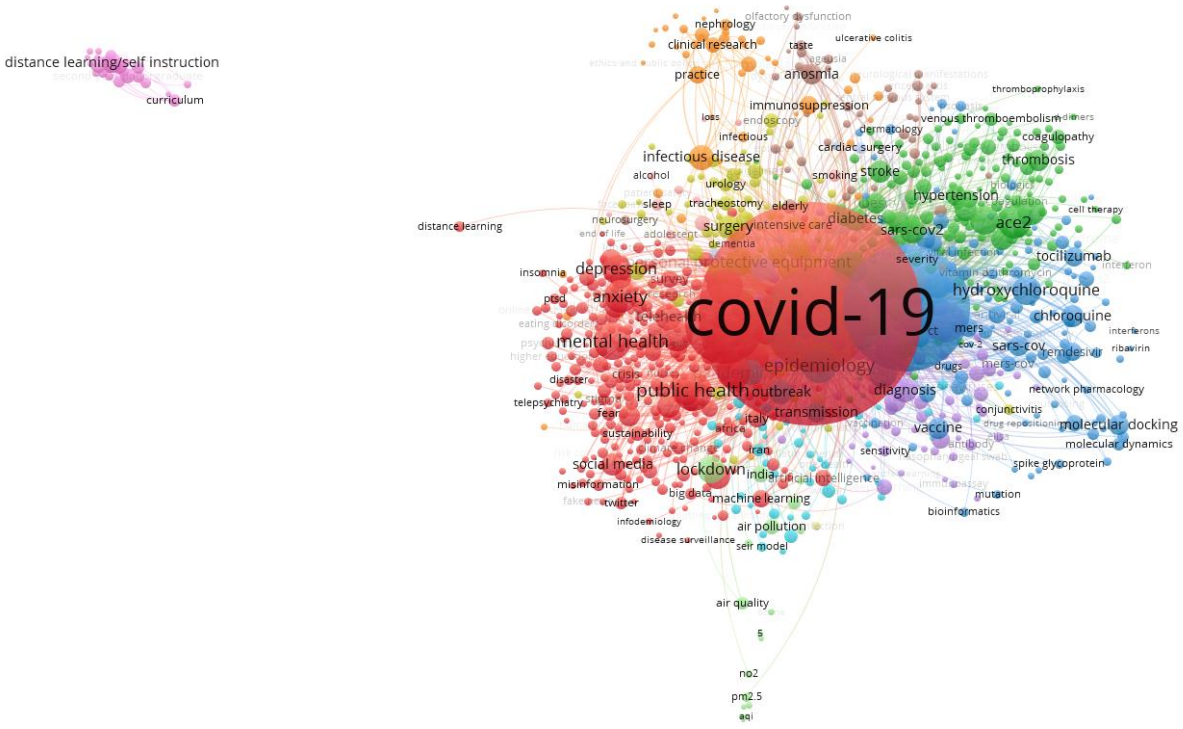

Figure 3.2: Network Visualization of the Co-Occurrence of the Author keywords in the Documents

5. CONCLUSION

COVID-19 is now regarded as the most serious and lethal disease induced by a new coronavirus for humans. The coronavirus, which is considered to have originated in Wuhan, China, and is responsible for a huge number of deaths, spread fast around the world in December 2019 [21]. This article we made an attempt to limit the impact of the COVID-19 epidemic since it began. Around the world, the search for effective therapies, vaccinations, and societal management methods has escalated. The analysis of bibliographic data has surely played a significant impact, providing academics with fresh insights and techniques. From this analysis, USA has published more documents related to Covid-19 within a short time, followed by Peoples R China [22]. Both the countries have more citations than the other countries. Most of the developed countries has shown more interesting towards publishing the documents of pandemic Covid-19. Most of the researchers has used the keywords of Covid-19, Sars-Cov-19 and coronavirus [23]. These findings are critical for academics, clinicians, journal editors, and those engaged in covid-19 research to understand the present literature's strengths and potential gaps, as well as to plan future data collecting and science policy investments.

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